Chapter 14
Energy Resources

14.1 Introduction

This chapter describes the impacts on energy resources that would result from construction and operation of each of the build alternatives. Energy resources in this context include the diesel fuel, gasoline, electricity, and natural gas that could be consumed by construction or operation of the proposed rail line, and the infrastructure required to distribute these energy resources. The sections that follow describe the study area for energy resources, the methods used to analyze the impacts, the affected environment, and the impacts of the build alternatives on energy resources. The regulations and guidance related to energy are summarized in Section 14.6, *Applicable Regulations*. Appendix S, *Energy Resources Analysis Methods*, provides further data on assessment methods and energy resource metrics. Chapter 18, *Cumulative Impacts*, addresses the contribution of the proposed rail line to cumulative impacts on energy.

In summary, the consumption of energy for construction and operation of any build alternative relative to the overall supply of energy resources in the study area would be negligible. Construction of the Moon Creek East Alternative would consume the most fuel, representing just 1 percent of the maximum annual throughput capacity of the refined products pipeline that supplies fuel to the study area. Operation of the Tongue River East Alternative would consume the most fuel, representing less than 1 percent of the available fuel supply in the study area. All build alternatives would cross one transmission line. The Tongue River Alternatives, Tongue River Road Alternatives, and Moon Creek Alternatives would each cross at least one pipeline; all crossings would be done in accordance with regulatory standards, and minimal impact is anticipated. The Colstrip Alternatives and Decker Alternatives would not cross any pipelines. No existing petroleum or natural gas production wells would need to be closed or relocated because of construction or operation of any build alternative. Electricity consumption would be negligible compared to available capacity. OEA concludes that there would be no impacts on the energy infrastructure. OEA concludes that the consumption of energy for construction and operation of any build alternative relative to the overall supply of energy resources in the study area would be negligible.

14.2 Study Area

OEA defined the study area for energy consumption impacts as the fuel distribution network within Custer, Rosebud, Big Horn, and Powder River Counties. OEA selected this study area because one or more of the build alternatives would cross each of these counties, and

equipment for constructing the proposed rail line and locomotives operating on the proposed rail line would be fueled from distribution facilities in Forsyth, Miles City, or Decker.

OEA defined the study area for energy distribution (transmission line and natural gas and petroleum liquid pipeline corridors) impacts as the energy distribution network in the four counties where a build alternative could affect the network (i.e., crossing of transmission line or pipeline). The study area for petroleum and natural gas well production impacts include the rail right-of-way plus the area along the right-of-way where access to an existing well near the right-of-way could be affected.

OEA did not identify a study area for the transport of recyclable commodities or for impacts associated with diversion of rail to motor carrier or motor carrier to rail. OEA does not anticipate that any recyclable commodities would be transported on the proposed rail line and does not expect coal in the region to be transported by truck.

14.3 Analysis Methods

To analyze fuel consumption impacts, OEA compared the amount of fuel (diesel and gasoline) required to construct and operate each of the build alternatives to the availability of fuel in the study area. To analyze electricity consumption impacts, OEA compared electricity consumption by ancillary facilities and equipment for the operation of each build alternative to electricity availability in the region. OEA anticipates that fuel needed for construction and operation of the build alternatives would be supplied through the existing petroleum products distribution system in the region.

To analyze impacts on energy distribution infrastructure, OEA identified the number of transmission line and pipeline crossings for each build alternative and impacts that the crossings could have on the distribution of energy facilitated by the infrastructure.

14.4 Affected Environment

14.4.1 Diesel Fuel and Gasoline Consumption, Supply, and Distribution

Diesel fuel is widely used throughout the rural and municipal areas of the study area, primarily for on-road and off-road vehicles, agricultural machinery, and heat and electric power production. Gasoline is primarily used in the study area for on-road and off-road vehicles. In 2011, 441 million gallons were consumed in the state of Montana (Energy Information Administration 2014).

The diesel fuel and gasoline distribution system in the study area is supplied by a refined products pipeline connecting refineries and fuel distribution terminals in Montana to the

Forsyth and Miles City area. An 8-inch diameter interstate petroleum liquids (refined products) pipeline operated by Cenex runs roughly east-west parallel to Interstate 94 (I-94) connecting the Cenex refinery in Laurel, Montana (approximately 160 miles from Miles City) to refined products storage terminals in Billings and Glendive (approximately 77 miles from Miles City) (Figure 14-1).

The Cenex pipeline has a throughput capacity of approximately 2.1 million gallons per day of refined products, including diesel fuel, gasoline, and other refined petroleum products. The Cenex petroleum refinery in Laurel has a throughput capacity of 2.3 million gallons per day. The CHS Storage Terminal in Glendive operates a truck loadout operation for distillate products, including diesel fuel. The CHS facility is permitted for a maximum of 478 million gallons of distillate product throughput for the truck loadout operation during any rolling 12-month period (Montana Department of Environmental Quality 2014). The State of Montana had 47.5 million gallons of diesel fuel stocks in November 2013 (Energy Information Administration 2014).

Diesel fuel and other refined petroleum products are provided to the four-county area by both pipelines and road tankers that originate at refineries and fuel terminals. The refined petroleum throughput capacities of the Cenex pipeline and Laurel refinery are approximately the same and representative of the supply of diesel fuel to the four-county area. Therefore, OEA has applied the pipeline throughput value (the lower capacity of the two to be conservative; 2.1 million gallons per day or 766.5 million gallons per year) as the metric to evaluate the energy resource impacts of the build alternatives.

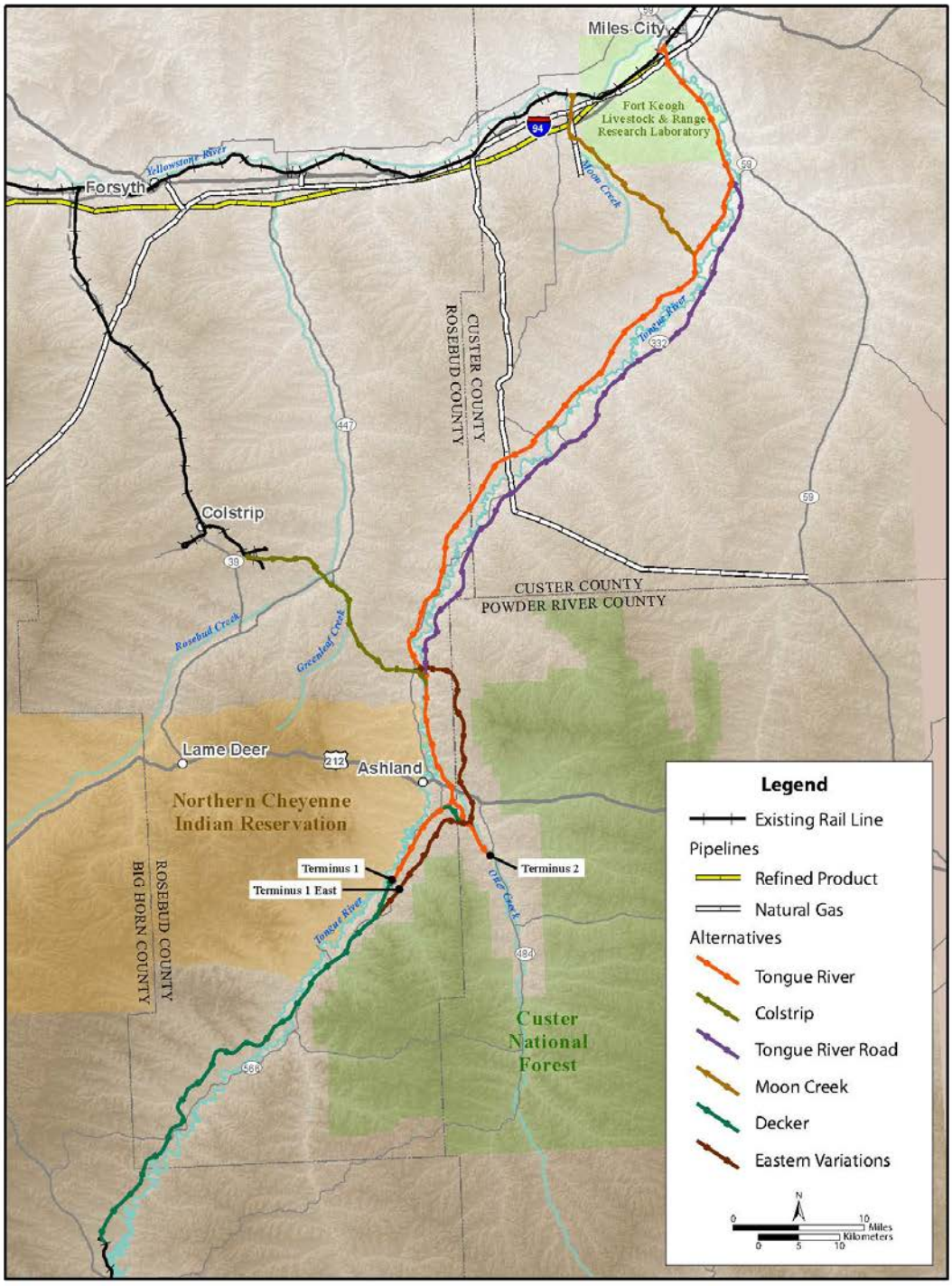

Figure 14-1. Pipelines in the Study Area

14.4.2 Electricity Consumption, Supply, and Distribution

Montana-Dakota Utilities provides electricity to Miles City and Forsyth (Montana-Dakota Utilities n.d.). Montana-Dakota Utilities generated 415,279 *megawatt hours*[1] of electricity in 2011 from their electric generating stations in Montana, including 218 megawatt hours from the Montana-Dakota Utilities Miles City generating station (Montana Department of Environmental Quality 2013a). Tongue River Electric Cooperative (TRECO) provides electricity service to Ashland and areas of Big Horn, Rosebud, Custer, and Powder River Counties (Tongue River Electric Cooperative n.d.). TRECO provided 6.3 *average megawatts* (55,188 *kilowatt hours*) of electricity to 4,264 residential customers, 1.5 average megawatts (13,140 kilowatt hours) of electricity to 519 commercial customers, and 1.7 average megawatts (14,892 kilowatt hours) of electricity to 132 industrial customers in their four-county service area in 2011 (Montana Department of Environmental Quality 2013b). Northwestern Energy supplies electricity to the city of Colstrip. Electric capacity is 40,000 kilowatts with peak demand of 10,000 kilowatts (City of Colstrip 2013). Northwestern Energy is a part owner of the Colstrip Power Plant, which has a peak output of 2,094 megawatts, of which 222 megawatts are owned by Northwestern Energy and 529 megawatts are owned by PPL Montana. PPL Montana is solely an electricity generator and does not deliver electricity to customers, but PPL does sell electricity to electrical utility companies and cooperatives in the region.

Electricity throughout the study area is distributed on transmission lines ranging in size from less than 69 kilovolt (kV) to 500-kV (Figure 14-1). A 230-kV electric transmission line runs east/west roughly parallel to and south of I-94 between Miles City and Forsyth. A 500-kV electric transmission line and a 230-kV electric transmission line originate in the city of Colstrip and cross State Route (SR) 39 north of Castle Rock Lake. There is a high concentration of electric transmission lines of various sizes near the city of Colstrip because of the city's proximity to the Colstrip Power Plant.

OEA anticipates that electricity would be supplied for the build alternatives from the Colstrip Power Plant through connections that would be established with the existing electricity distribution grid. Communications towers and operations buildings would also be equipped with diesel fuel emergency generators for backup power. OEA has applied the electric generating capacity of the Colstrip Power Plant (2,094 megawatts) as a metric to assess impacts of the electricity consumption for construction and operation of the build alternatives.

[1] Terms italicized at first use are defined in Chapter 25, *Glossary*.

14.4.3 Petroleum Liquid and Natural Gas Pipeline Infrastructure and Production Wells

Petroleum pipeline infrastructure in the study area is described in Section 14.4.1, *Diesel Fuel and Gasoline Consumption, Supply, and Distribution*, as part of the fuel distribution on the study area.

A 12-inch natural gas pipeline operated by Williston Basin Interstate Pipeline Company runs roughly east-west parallel to I-94 between Miles City and Forsyth (Figure 14-1). The Williston Basin pipeline route runs to the southwest from Forsyth and crosses SR 39 approximately 18 miles to the northwest of the city of Colstrip. An 8-inch natural gas pipeline operated by Williston Basin Interstate Pipeline Company runs south from near the point where the 12-inch pipeline crosses the Custer County/Rosebud County line and runs parallel to the county line in Custer County (Figure 14-1). The pipeline crosses the Tongue River approximately 30 miles northeast of Ashland and connects to a 4-inch pipeline that runs to the south and east parallel to Custer County and Powder River County to intersect SR 59 in Custer County. Another natural gas pipeline operated by Williston Basin Interstate Pipeline Company runs 5 miles to the south parallel to Moon Creek from near the point where the 12-inch natural gas pipeline crosses Moon Creek.

Petroleum and natural gas production wells are operating in the study area (Figure 14-1). The Tongue River Road Alternatives would be located just west of a cluster of 11 natural gas production wells. The nearest well would be located within 0.25 mile of the right-of-way. One petroleum production well is operating south of Ashland, west of the Tongue River.

14.5 Environmental Consequences

Impacts on energy resources could result from construction and operation of build alternatives. The impacts common to all build alternatives are presented first, followed by impacts specific to each of the build alternatives.

The proposed rail line would be used primarily to transport coal and would not be routinely used to transport other energy commodities (e.g., crude oil, diesel fuel) or nonenergy commodities. Although rail operation would affect the transport of coal, operation would not affect the transport of other energy commodities or recyclable commodities in the area. Therefore, the build alternatives would not result in impacts related to transport of recyclable commodities.

Rail operation would not divert traffic from rail to motor carrier or from motor carrier to rail. Moving coal by rail is generally more efficient than moving coal by truck (Federal Railroad Administration 2009). OEA does not expect coal produced in the region to be transported by truck. Accordingly, the operation of the proposed rail line would not result in diversion of

motor carrier traffic and the build alternatives would not result in impacts related to motor carrier traffic.

14.5.1 Impacts Common to All Alternatives

14.5.1.1 Construction

Construction of any build alternative would have minimal impact on the availability of diesel fuel in the study area. On an annual basis under the 12-month construction schedule (year-round) (Section 2.2.9, *Construction Schedule*) the percentage of diesel fuel used when compared to the annual maximum throughput capacity of the Cenex refined petroleum products pipeline (766.5 million gallons per year) would range from 0.95 percent to 1 percent of the annual maximum throughput capacity of the pipeline, depending on the build alternative. On an annual basis under the 8-month construction schedule (no construction in winter), the volume of fuel required to construct any build alternative when compared to available capacity would be even lower than the 12-month schedule because construction would be spread out over more years. Diesel fuel use during construction would be short-term and temporary.

OEA does not anticipate that construction of the rail line would require any relocation or alteration of electric transmission lines. If relocations or alterations were to occur, TRRC would ensure that industry standards are met and disruption minimized, and would coordinate any alterations with the transmission line owner.

Build alternatives would cross pipeline rights-of-way in accordance with regulatory standards. OEA does not anticipate any disruption to the pipeline operation or short-term impacts on pipeline safety from construction or operation of any build alternative.

None of the build alternatives would require the closure or relocation of existing petroleum or natural gas production wells. One natural gas well would be located within 0.25 mile of the Tongue River Road Alternatives, which could result in access issues to the well location. However, TRRC would relocate this road, allowing continued access to the natural gas well.

The following construction impact is common to all build alternatives.

- **Require Energy for Rail Line Construction**

  Earth-moving, bridge construction, road relocations, operation of construction supply locomotives, and operation of construction workforce vehicles would consume diesel fuel and gasoline. Various forms of equipment, such as excavators, trucks, bulldozers, and cranes will be used to clear, grade, and construct the proposed rail project. Construction supply locomotives would include trains used to transport rails, railroad ties, and ballast during the construction period. OEA estimated energy consumption (diesel fuel gallons) based on the estimated total operating hours of each equipment type over the construction

period. Appendix S, *Energy Resources Analysis Methods*, provides further data on assessment methods and energy resource metrics.

14.5.1.2 Operation

Operation of any build alternative would have minimal impact on the availability of diesel fuel in the study area. The consumption of electricity for the communications towers would be negligible compared to available capacity. The impacts related to energy requirements for operation of the rail line would vary depending on the length of the build alternative, the distance trains would travel along the right-of-way, and the coal production scenario[2] and volume of train traffic. Appendix S, *Energy Resources Analysis Methods*, provides further data on assessment methods and energy resource metrics.

The following impacts are common to all build alternatives.

- **Require Energy for Rail and Infrastructure Operation and Maintenance**

  Rail operation would consume energy (diesel fuel) primarily for the operation of locomotives, but track and access road maintenance equipment and fixed facilities, such as communications towers and operations buildings (e.g., backup electric power generation), would also consume fuel. Diesel fuel consumption for operation of locomotives would vary by build alternative based on the length of the right-of-way and distance trains would travel along the right-of-way.

- **Require Electricity to Operate Infrastructure**

  Rail operation would consume electricity primarily to operate communications towers and support facility buildings, and to operate low-voltage signals and detectors. TRRC would construct between two and six new communications towers to support rail line operation, depending on the build alternative. OEA anticipates that the communications towers would be supplied by grid electricity with diesel generator backup power supply. TRRC would construct a new 1,100-square-foot building in Ashland to support rail operation. Based on an energy intensity of 26.3 kilowatt hours per square foot of office space (Energy Information Administration 2006), OEA anticipates that the operation of the new building would consume approximately 29,000 kilowatt hours of electricity per year. Compared to the maximum output of the Colstrip Power Plant (2,094 megawatts) the amount of electricity needed for the new building would be negligible. Electricity would likely be supplied to the new building by TRECO, and would originate from local and regional generating stations, including the Colstrip Power Plant.

[2] The high, medium, and low production scenarios are described in Appendix C, *Coal Production and Markets.* The implications of these scenarios for rail traffic are summarized in Chapter 2, Section 2.3.3, *Rail Traffic.*

14.5.2 Impacts by Build Alternative

The impacts on energy resources that are specific to each build alternative are described below, and are summarized in the following tables.

- Table 14-1 shows the total diesel fuel consumption for construction of each build alternative.
- Table 14-2 shows the electric transmission lines and pipelines that would be crossed by each build alternative.
- Table 14-3 shows the diesel fuel consumption for operation of each build alternative according to coal production scenario (low, medium, high).

Table 14-1. Total Diesel Fuel Consumption for Construction of Build Alternatives

Build Alternative	Total (million gallons)[a]
Tongue River	12.41
Tongue River East	18.47
Colstrip	10.01
Colstrip East	13.56
Tongue River Road	18.37
Tongue River Road East	22.00
Moon Creek	18.13
Moon Creek East	24.20
Decker	21.46
Decker East	21.47

Notes:

[a] Includes total diesel fuel consumption for all construction related activities – rail line earthwork, bridge construction, road relocations, operation of construction supply locomotives, and operation of construction workforce vehicles. Construction workforce vehicle fuel consumption will include gasoline and diesel fuel; workforce vehicle fuel consumption is reported as diesel fuel. OEA anticipates that fuel consumption for other construction equipment and vehicles will be primarily diesel fuel.

Table 14-2. Electric Transmission Line and Pipeline Corridors Crossed by Each Build Alternative (number of crossings)

Build Alternative	Electric Transmission Line, 230 kV	Electric Transmission Line, Less than 69 kV	Natural Gas Pipeline	Petroleum Liquids Pipeline
Tongue River	1	0	2	1
Tongue River East	1	0	2	1
Colstrip[a]	0	1	0	0
Colstrip East[a]	0	1	0	0
Tongue River Road	1	0	1	1
Tongue River Road East	1	0	1	1
Moon Creek	1	0	3	1
Moon Creek East	1	0	3	1
Decker	1	0	0	0
Decker East	1	0	0	0

Notes:
[a] Does not include the existing Colstrip Subdivision
kV = kilovolt

Table 14-3. Estimated Diesel Fuel Consumption for the Operation of Each Build Alternative for the Low, Moderate, and High Coal Production Scenarios

	Diesel Fuel Consumption During Operation (million gallons/year)		
Build Alternative	Low Production Scenario	Moderate Production Scenario	High Production Scenario
Tongue River	2.82	4.56	7.11
Tongue River East	2.88	4.72	7.35
Colstrip	2.38	3.86	6.02
Colstrip East	2.46	4.05	6.31
Tongue River Road	2.82	4.56	7.11
Tongue River Road East	2.87	4.70	7.31
Moon Creek	2.76	4.46	6.96
Moon Creek East	2.82	4.63	7.20
Decker	1.9	2.73	5.47
Decker East	1.85	2.67	5.43

14.5.3 No-Action Alternative

Under the No-Action Alternative, TRRC would not construct and operate the proposed Tongue River Railroad, and there would be no impacts on energy resources from construction or operation of the proposed rail line.

14.5.4 Mitigation and Unavoidable Environmental Consequences

OEA is not recommending mitigation measures for impacts on energy resources because such impacts from construction and operation of the proposed rail line would be negligible. Construction and operation of the build alternatives would consume energy, including diesel fuel, gasoline, and electricity, but this energy demand would represent a small percentage of the available supply of energy in the study area.

Some of the build alternative rights-of-way would cross electric transmission line, petroleum liquid pipeline, and natural gas pipeline rights-of-way. These crossings would be in accordance with industry regulatory standards as routinely used in the study area, and OEA anticipates that these standards would minimize any chance of disrupting the petroleum liquid pipeline and transmission line operation during construction. Therefore, OEA does not anticipate any impacts on this energy infrastructure. OEA concludes that the consumption of energy for construction and operation of any build alternative relative to the overall supply of energy resources in the study area would be negligible.

14.6 Applicable Regulations

Different federal, state, and local entities are responsible for the regulation of energy resources. These entities and the regulations and guidance related to energy resources are summarized in Table 14-4.

Table 14-4. Regulations and Guidance Related to Energy Resources

Regulation	Explanation
Federal	
National Environmental Policy Act (42 U.S.C. § 4321 et seq.)	Requires the consideration of potential environmental effects, including consideration to the energy requirements and conservation potential of various alternatives of a proposed project as well as mitigation measures (40 C.F.R. §1502.16(e)).
Surface Transportation Board Environmental Reporting Procedures (49 C.F.R. §1105.7)	Require an analysis of a project's potential impacts on transportation of energy resources, recyclable commodities, overall energy efficiency, and diversions from rail to motor carrier.
Pipeline and Hazardous Materials Safety Administration, Department Of Transportation authority (49 C.F.R. Parts 190–199)	Assigns authority over natural gas pipeline safety, including design, construction, operation and maintenance, and spill response planning
Federal Energy Regulatory Commission	Responsible for regulating rates and practices of petroleum pipeline companies engaged in interstate transportation. The commission does not have jurisdiction over construction or maintenance of petroleum pipelines.
State	
Montana Public Service Commission regulations (Montana Code Title 69 Chapter 3)	Regulates public electricity and natural gas utilities, including establishing ratemaking procedures and provisions for audits and inspections of facilities. Also has jurisdiction over regulation of intrastate natural gas pipelines.
Montana Department of Transportation permitting requirements (Montana Administrative Rule Chapter 18.7, Subchapter 2)	Responsible for permitting crude oil and petroleum liquids pipelines that cross streams and rivers.
Montana Department of Labor and Industry, commercial building energy code (Administrative Rules of Montana, Title 24, Chapter 301.160)	Require that commercial buildings comply with the 2009 International Energy Conservation Code or ASHRAE Standard 90.1-2007. Adopted on March 26, 2010, the code sets minimum requirements for insulation levels, lighting, mechanical, and service water heating equipment for commercial buildings. This regulation would apply to the design and construction of an operations building in Ashland, Montana.
Local	
No local statutes, regulations, or guidelines apply to energy resources.	

Notes:
U.S.C. = United States Code; C.F.R. = Code of Federal Regulations; MCA = Montana Code Annotated